

<b>SOP</b>	<b>0110.05</b>				
<b>GROUP</b>	Database Management System				
<b>SUB-GROUP</b>	Data Collection and Acquisition				
<b>TITLE</b>	Sample Nomenclature				
<b>DATE</b>	04/01/2010	<b>FILE</b>	0110.05.docx	<b>PAGE</b>	1 of 2

## INTRODUCTION

The following Standard Operating Procedure (SOP) presents the sample nomenclature for analytical samples that will generate unique sample names compatible with most data management systems. The sample nomenclature is based upon specific requirements for the reporting of these results. A site specific data management plan should be prepared prior to sample collection.

## PROCEDURE

### SAMPLE NOMENCLATURE – SOIL AND SEDIMENT

#### **Area of Concern – ID – Depth - Collection Type + QC Type**

#### **Where:**

**Area of Concern:** A four-digit identifier used to designate the particular Area of Concern (AOC) that the location where the sample was collected.

**ID:** A three letter &/or digit identifier used to designate the particular location (i.e. grid A01, P06, or 055) in the AOC from which the sample was collected or the center of the composite sample.

**Depth:** A two-digit code used to designate what depth of sample was collected:

code	Assessment	Confirmation
00	0 to 0 Surface	N/A
03	0 to 3 inches	3 inches below original ground surface
06	3 to 6 inches	6 inches below original ground surface
12	6 to 12 inches	12 inches below original ground surface

**Collection Type:** A one-digit code used to designate what type of sample was collected:

1	Surface Water	6	Oil
2	Ground Water	7	Waste
3	Leachate	8	Other
4	Field QC/water sample	9	Drinking Water
5	Soil/Sediment		

**QC Type:** A one-digit code used to designate the QC type of the sample:

1	Normal
2	Duplicate
3	Rinsate Blank
4	Trip Blank
5	Field Blank
6	Confirmation, Normal
7	Confirmation, Duplicate

#### **Examples:**

- **2054-055-06-51:** Represents the normal soil sample collected from AOC 2054 at location 055 from 3 to 6 inches of depth.
- **2054-055-06-52:** Represents the duplicate soil sample collected from AOC 2054 at location 055 from 3 to 6 inches of depth.

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- **2054-000-00-43:** Represents the rinsate sample from AOC 2054
- **2054-055-06-56:** Represents the normal soil sample collected from AOC 2054 at location 055 after 6 inches of material has been removed as the confirmation sample during removal.  
NOTE: The depth is in relation to the original ground surface.
- **2054-055-06-43:** Represents the rinsate water sample collected after the last sample of the day if last sample was collected from AOC 2054 at location 055 from 3 to 6 inches of depth.

**SAMPLE NOMENCLATURE – WATER** (from fixed station or location to be sampled more than once)

**WELL OR STATION – YYYYMMDD - Collection Type + QC Type**

**Where:**

**Well or Station:** For Wells and boreholes always assume there will be 10 or more so Monitoring Well 1 becomes designated MW01 or MW-01. If it is anticipated that there will be over 100 wells designate Monitoring Well 1 as MW001 or MW-001.

**YYYYMMDD:** A four-digit year + two-digit month + two-digit day

**Collection Type:** A one-digit code used to designate what type of sample was collected and are shown on page 1.

**QC Type:** A one-digit code used to designate the QC type of the sample and are shown on page 1.

**Examples:**

- **MW01-20090226-21:** Represents the normal groundwater sample collected from Monitoring Well 1 on 26 February 2009.
- **MW01-20090226-44:** Represents the trip blank in the same ice chest as the groundwater sample in the previous collected from Monitor Well 1 on 02/26/2009. All trip blanks must have a sample ID and they must be unique and on the Chain-of -Custody.

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<b>GROUP</b>	Sampling Handling				
<b>SUB-GROUP</b>	Sample Custody				
<b>TITLE</b>	Sample Custody in the Field				
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## INTRODUCTION

The following Standard Operating Procedure (SOP) presents procedures for maintaining sample chain of custody (COC) during activities where samples are collected.

## PROCEDURE

Sample custody is defined as being under a person's custody if any of the following conditions exist:

- it is in their possession,
- it is in their view, after being in their possession,
- it was in their possession and they locked it up, or
- it is in a designated secure area.

A designated field sampler will be personally responsible for the care and custody of collected samples until they are transferred to another person or properly dispatched to the laboratory. To the extent practicable, as few people as possible will handle the samples.

Sample tags or labels will be completed and applied to the container of each sample. When the tags or labels are being completed, waterproof ink will be used. If waterproof ink is not used, the tags or labels will be covered by transparent waterproof tape. Sample containers may also be placed in Ziploc-type storage bags to help keep them clean in the cooler. Information typically included on the sample tags or labels will include the following:

- Project Code
- Station Number and Location
- Sample Identification Number
- Date and Time of Sample Collection
- Type of Laboratory Analysis Required
- Preservation Required, if applicable
- Collector's Signature
- Priority (optional)
- Other Remarks

Additional information may include:

- Anticipated Range of Results (Low, Medium, or High)
- Sample Analysis Priority

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A COC form will be completed each time a sample or group of samples is prepared for transfer to the laboratory. The form will repeat the information on each of the sample labels and will serve as documentation of handling during shipment. The minimum information requirements of the COC form are listed in Table 1101.01-A. An example COC form is shown in Figure 1101.01-A. The completed COC must be reviewed by the Field Team Leader or Site Manager prior to sample shipment. The COC form will remain each sample shipping container at all times, and another copy will be retained by the member of the sampling team who originally relinquished the samples or in a project file.

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**TABLE 1101.01-A CHAIN OF CUSTODY FORM**

<b>INFORMATION</b>	<b>COMPLETED BY</b>	<b>DESCRIPTION</b>
<b>COC</b>	Laboratory	enter a unique number for each chain of custody form
<b>SHIP TO</b>	Field Team	enter the laboratory name and address
<b>CARRIER</b>	Field Team	enter the name of the transporter (e.g., FedEx) or handcarried
<b>AIRBILL</b>	Field Team	enter the airbill number or transporter tracking number (if applicable)
<b>PROJECT NAME</b>	Field Team	enter the project name
<b>SAMPLER NAME</b>	Field Team	enter the name of the person collecting the samples
<b>SAMPLER SIGNATURE</b>	Field Team	signature of the person collecting the samples
<b>SEND RESULTS TO</b>	Field Team	enter the name and address of the prime contractor
<b>FIELD SAMPLE ID</b>	Field Team	enter the unique identifying number given to the field sample (includes MS, MSD, field duplicate and field blanks)
<b>DATE</b>	Field Team	enter the year and date the sample was collected in the format M/D (e.g., 6/3)
<b>TIME</b>	Field Team	enter the time the sample was collected in 24 hour format (e.g., 0900)
<b>MATRIX</b>	Field Team	enter the sample matrix (e.g., water, soil)
<b>PRESERVATIVE</b>	Field Team	enter the preservative used (e.g., HNO3) or "none"
<b>FILTERED/ UNFILTERED</b>	Field Team	enter "F" if the sample was filtered or "U" if the sample was not filtered
<b>CONTAINERS</b>	Field Team	enter the number of containers associated with the sample
<b>MS/MSD</b>	Field Team or Laboratory	enter "X" if the sample is designated for the MS/MSD
<b>ANALYSES REQUESTED</b>	Field Team	enter the method name of the analysis requested (e.g., SW6010A)
<b>COMMENTS</b>	Field Team	enter comments
<b>SAMPLE CONDITION UPON RECEIPT AT LABORATORY</b>	Laboratory	enter any problems with the condition of any sample(s)
<b>COOLER TEMPERATURE</b>	Laboratory	enter the internal temperature of the cooler, in degrees C, upon opening
<b>SPECIAL INSTRUCTIONS/COMMENTS</b>	Laboratory	enter any special instructions or comments
<b>RELEASED BY (SIG)</b>	Field Team and Laboratory	enter the signature of the person releasing custody of the samples
<b>COMPANY NAME</b>	Field Team and Laboratory	enter the company name employing the person releasing/receiving custody
<b>RECEIVED BY (SIG)</b>	Field Team and Laboratory	enter the signature of the person receiving custody of the samples
<b>DATE</b>	Field Team and Laboratory	enter the date in the format M/D/YY (e.g., 6/3/96) when the samples were released/received
<b>TIME</b>	Field Team and Laboratory	enter the date in 24 hour format (e.g., 0900) when the samples were released/received

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**FIGURE 1101.01-A CHAIN OF CUSTODY FORM**

<b>SOP</b>	<b>1102.01</b>				
<b>GROUP</b>	Sample Handling				
<b>SUB-GROUP</b>	Sample Shipping				
<b>TITLE</b>	Sample Shipping				
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## INTRODUCTION

The following Standard Operating Procedure (SOP) presents the procedures for sample shipping that will be implemented during field work involving sampling activities.

## TERMS

COC - Chain-of-Custody

## PROCEDURE

Prior to shipping or transferring custody of samples, they will be packed according to D.O.T. requirements with sufficient ice to maintain an internal temperature of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$  during transport to the laboratory. Samples relinquished to the participating laboratories will be subject to the following procedures for transfer of custody and shipment:

1. Samples will be accompanied by a COC record. When transferring possession of samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of the sample transfer on the record. If sent by common carrier, a bill of lading or airbill should be used. Bill of lading and airbill receipts will be retained in the project file as part of the permanent documentation of sample shipping and transfer. This custody record documents transfer of sample custody from the sampler to another person or to the laboratory. The designated laboratory will accept custody in the field upon sample pick-up or at the laboratory if the samples are delivered via field personnel or a courier service.
2. Samples will be properly packed in approved shipping containers for laboratory pick-up by the appropriate laboratory for analysis, with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be padlocked or custody-sealed for transfer to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape that is wrapped around the package at least twice. The custody seal will then be folded over and stuck to itself so that the only access to the package is by cutting the filament tape or breaking the seal to unwrap the tape. The seal will then be signed. The designated laboratory will accept custody of the samples upon receipt.
3. Whenever samples are split with state representatives or other parties, the COC record will be marked to indicate with whom the samples were split.
4. The field sampler will call the designated laboratory to inform them of sample shipment and verify sample receipt as necessary.

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<b>GROUP</b>	Decontamination				
<b>SUB-GROUP</b>	Sampling Equipment Decontamination				
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## INTRODUCTION

The following Standard Operating Procedure (SOP) presents the methods used for minimizing the potential for cross-contamination, and provides general guidelines for sampling equipment decontamination procedures.

## PROCEDURE

As part of the Health and Safety Plan (HASP), develop and set up a decontamination plan before any personnel or equipment enter the areas of potential exposure. The decontamination plan should include the following:

- The number, location, and layout of decontamination stations
- Which decontamination apparatus is needed
- The appropriate decontamination methods
- Methods for disposal of contaminated clothing, apparatus, and solutions

### Decontamination Methods

Personnel, samples, and equipment leaving the contaminated area of a site will be decontaminated. Various decontamination methods will be used to either physically remove contaminants, inactivate contaminants by disinfection or sterilization, or both. The physical decontamination techniques appropriate for equipment decontamination can be grouped into two categories: abrasive methods and non-abrasive methods.

#### *Abrasive Cleaning Methods*

Abrasive cleaning methods work by rubbing/scrubbing the surface containing the contaminant. This method includes mechanical and wet blasting methods.

Mechanical cleaning methods use brushes of metal or nylon. The amount and type of contaminants removed will vary with the hardness of bristles, length of brushing time, and degree of brush contact.

Cleaning can also be accomplished by water blasting which is also referred to as steam cleaning and pressure washing. Pressure washing utilizes high-pressure that is sprayed from a nozzle onto sampling equipment to physically remove soil or (potentially) contaminated material. Steam cleaning is a modification of pressure washing where the water is heated to temperatures approaching 100°C to assist in removing organic constituents from equipment.



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### *Disinfection/Rinse Methods*

Disinfectants are a practical means of inactivating chemicals or contaminants of concern. Standard sterilization methods involve heating the equipment which is impractical for large equipment. Rinsing removes contaminants through dilution, physical attraction, and solubilization.

The use of distilled/deionized water commonly available from commercial vendors may be acceptable for decontamination of sampling equipment provided that it has been verified by laboratory analysis to be target analyte free. Tap water may be used from any municipal water treatment system for mixing of decontamination solutions. An untreated potable water supply is not an acceptable substitute for tap water. Acids and solvents are occasionally utilized in decontamination of equipment to remove metals and organics, respectively, from sampling equipment. Other than ethanol, these are avoided when possible due to the safety, disposal, and transportation concerns associated with them.

Equipment or apparatuses that may be selected for use include the following:

- Personal protective clothing
- Non-phosphate detergent
- Selected solvents for removal of polar and nonpolar organics (ethanol, methanol, hexane)
- Acid washes for removal of metals (nitric acid)
- Long-handled brushes
- Drop cloths or plastic sheeting
- Paper towels
- Galvanized tubs or buckets
- Distilled, deionized, or tap water (as required by the project)
- Storage containers for spent wash solutions
- Sprayers (pressurized and non-pressurized)
- Trash bags
- Safety glasses or splash shield

### Field Sampling Equipment Cleaning Procedures

The following procedures should be followed:

1. Where applicable, follow physical removal procedures previously described (pressure wash, scrub wash)
2. Wash equipment with a non-phosphate detergent solution
3. Rinse with tap water
4. Rinse with distilled or deionized water
5. Rinse with 10% nitric acid if the sample will be analyzed for metals/organics
6. Rinse with distilled or deionized water
7. Use a solvent rinse (pesticide grade) if the sample will be analyzed for organics
8. Air dry the equipment completely
9. Rinse again with distilled or deionized water

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10. Place in clean bag or container for storage/transport to subsequent sampling locations.

Selection of the solvent for use in the decontamination process is based on the contaminants present at the site. Solvent rinses are not necessarily required when organics are not a contaminant of concern and may be eliminated from the sequence specified below. Similarly, an acid rinse is not required if the analyses do not include inorganics. Use of a solvent is required when organic contamination is present on-site. Typical solvents used for removal of organic contaminants include acetone, ethanol, hexane, methanol, or water. An acid rinse step is required if metals are present on-site. If a particular contaminant fraction is not present at the site, the ten-step decontamination procedure listed above may be modified for site specificity.

Sampling equipment that requires the use of plastic tubing should be disassembled and the tubing replaced with clean tubing before commencement of sampling and between sampling locations. Plastic tubing should not be reused.